not mention was the work of Alvarez and confirmed by Donaldson, who showed that all the symptoms of auto-intoxication, such as headache, delayed reaction time to touch, sight and hearing, increased basal metabolism, increased blood sugar, increased neuromuscular fatigue, elevated blood pressure, may all be produced by mechanical distention of the lower bowel, entirely independently of toxic absorption. Packing the rectum with cotton pledgets in a group of individuals experimentally substantiated the hypothesis. This does not prove that the absorption of the toxic products of putrefaction or fermentation may not also lead to derangements of function. Presumably the distention of the bowel operates through the involuntary nervous system in producing its effects.

ANSTRUTHER DAVIDSON, M. D. (419 South Alvarado Street, Los Angeles)—The author's desire to elucidate the influence of metablic disturbances on the skin is rather timely, as the tendency at present is to ascribe the majority of the cases of dermatitis to local or extraneous causes.

Doctor Schroeter has, I think, unduly stressed protein poison as a causative factor. While affections like urticaria are the local expression of an acute anaphylaxis as T. B. and syphilis are examples of chronic anaphylaxis due to a protein poison, many of the affections such as eczema and acne are probably chemical, rather than protein in origin. The rash that follows acetanilid and other chemicals is caused by the chemical forming with the colloids insoluble products. In eczema and acne the chemical products resulting from errors in carbohydrate metabolism are probably the chief factors.

There is not at present sufficient evidence to convict the bacteria of the intestines of playing an important part in the causation of skin diseases. The presence or absence of certain forms is so manifestly dependent on "soil conditions" that their influence can only be of secondary importance.

HARRY E. ALDERSON, M. D. (240 Stockton Street, San Francisco)—From a purely clinical standpoint it has been recognized for years that various dermatoses, particularly those mentioned by Schroeter, are due to so-called toxins. These diseases have been treated more or less empirically, but with the idea of eliminating those mysterious toxins, with considerable success. Biological chemistry is now clarifying the situation and placing therapy in many of these troubles on a more scientific basis.

The relationship of impaired liver functions to cutaneous disturbances has been recognized for years. Intense itching, associated with even very slight icterus, is a common occurrence. Similar phenomena in connection with abdominal malignancy are likewise well known. We appear to be on the threshold of discoveries that may explain more definitely the mechanism or some of these processes. As Schroeter states, there are many chemical products resulting from the breaking down of foods or bacteria which are capable of producing cutaneous symptoms. These symptoms may be manifested in the form of a frank eruption, or the skin may show increased vulnerability. There occur alleged "occupational dermatoses" which are due principally to these causes. Altered functions of various internal organs may be responsible for the breaking down of proteins and formation of toxins. Disturbed thyroid activities, and functional disturbances of other ductless glands in many cases constitute the main etiological factors. And so it may be said that the dermatologist, to be really successful, must be, at all times, an internist.

DOCTOR SCHROETER (closing)—I want to emphasize that toxic dermatoses. of course, must, in their last analysis, be the result of toxins and toxins are chemical, whether bacterially produced in the throat, as in scarlet fever, in the bowels, or introduced by ingestion like acetanilid. All toxic dermatoses have characteristics which stamp them as such to every dermatologist, and whether produced by drugs or an undetected internal factor, they all have a striking resemblance in basic character. While the group of toxic dermatoses have, of course, been long recognized as a group of skin diseases, yet the specific production and modus operandi of the toxins have been hitherto, and are still, dark in many particulars. It has been my poor effort here to submit something more definite as to these matters and to incite more interest in the chemical and laboratory study of these toxins and their action.

MASTOID SURGERY *

By CULLEN F. WELTY, M. D., *San Francisco*

I believe that indications for and the type of operation for chronic suppuration may be selected as clearly in the near future as we today differentiate in findings and methods between the acute and the radical operations.

A patient who has had the radical mastoid operation needs attention three or four times a year as long as he lives. Without such attention, trouble will follow and, if neglected too long, reoperation may be necessary.

DISCUSSION *by John LaRue Robinson, Reno, Nevada; D. H. Trowbridge, Fresno; J. W. Green, Vallejo.*

BECAUSE of the many different operative procedures devised for acute and chronic suppuration of the mastoid process, it might be in keeping to tell you what I have been doing for some ten years past. Various operations have been tried; different dressings, as well as the technique of the operations.

Probably the individual surgeon will have better success with his own technique. There are many ways in which failure can come. So when I go into detail, it is absolutely necessary for you to carry out in detail everything that I may say. A part cannot be selected and another discarded, for I am going to make some very striking statements and, in a way, hold myself responsible for your performance, provided you fulfil the instructions.

To make this a little more striking, I am going to say that I have not lost a patient following an acute mastoid operation during a period of fifteen years, either in my city and county hospital service or among my own private patients. Many times my patients were not selected by myself, but were forced upon me because of the position I occupied.

In an acute otitis with temperature, tenderness and increased white blood count following an incision of the drum membrane, with increasing difficulties and a decided bulging of the posterior superior wall (the most reliable symptom of all), something must be done to relieve the pent-up pus. The interval that may be covered by such a process of reasoning is from three days to two weeks.

If at the end of two weeks or later there is a pulsation of the pus through the perforation, without any other symptom, the surgeon may be perfectly sure that he will find pus in the mastoid. If at the end of two weeks, or later, there is bulging of the posterior superior wall, without any other symptoms whatsoever, it is certain that the mastoid is full of pus. Facial paralysis is always an indication for immediate operation during the course of an acute otitis, and there are many other conditions quite familiar to all ear surgeons that should be considered to be clear indications for operative interference.

A condition that stands out alone in diagnostic value and was called attention to by me fifteen years ago, is that an acute otitis should not be allowed to exist for a period of more than six weeks without operation because the hearing is so likely to be impaired, or a permanent perforation remain that will be an annoyance for the balance of the individual's life. I consider it criticizable negligence to allow an acute otitis to become chronic, and I be-

* Read at the Annual Session of the Nevada Medical Association, Reno, September, 1924.

lieve the time will come when medical authorities will so consider it. In hesitating about doing an unnecessary operation, it is well for the surgeon to bear in mind that a good surgeon will not damage a healthy ear, but by delay every now and then a patient will be lost.

The indications for the acute mastoid operation are based largely upon clinical symptoms and history, coupled with a few definite findings. If a patient suffering from an acute mastoiditis does not improve steadily from day to day, surgical interference is positively indicated. This holds good any time, from the third day to the fourteenth day of the disease; after that the patient belongs in another class to be judged in another way. My technique for the acute mastoid operation contemplates the removal of every individual cell. Every cell that can be found with an instrument I call a searcher (not as large as the end of a pin) is removed until hard bone is encountered everywhere. The attic is opened freely and all cancellous bone removed from this area.

When every individual cell has been removed with a hand burr, chisel or other instrument, the cavity is packed with plain gauze. The ear is packed with plain gauze; a few stitches are taken at the angle and the head bandaged. An ice-cap is applied constantly to the operated ear for twenty-four hours and the wound is dressed in four days, provided everything remains satisfactory. Should the patient have fever following operation, such as I have described, one of three conditions are present in order of frequency—remaining cells carrying infection, beginning of an acute infectious disease, or cerebral complication, the most frequent of which is thrombosis of the lateral sinus.

Under favorable conditions it will be found that the discharge from the ear has ceased entirely at the first dressing. Loose packing is then reinserted in the ear; gauze is removed from the wound and loose gauze is inserted; gauze fluff is added and bandage again applied for two days, when the second dressing is done. The wound should continue to be dressed every second day, so long as it remains free from pus. As soon as pus appears it is dressed daily until it is again free from pus. In the event of oversized granulations developing, they are removed with a small curret, or cut down with nitrate of silver fused upon a probe and the silver neutralized with salt solution. If granulations fail to develop, a thick pack of iodoform gauze is inserted; changed daily until the granulations are normal, and then the part dressed with plain gauze. During the past ten years, under such treatment I have never found it necessary to reoperate a single, individual case in a series of about four hundred cases. (As this paper is about to go to print, I have had to reoperate one of my acute cases. The detailed history of this case would be too complicated to go into at this particular time.)

The radical mastoid operation I believe has come to stay. I do not see how it can be improved upon. However, I do not believe that every case of chronic suppuration of the middle ear (chronic after one year), especially in children, should have the radical mastoid operation.

Some ten years ago I did the acute mastoid operation in a series of twelve cases with chronic suppuration of the middle ear. Many cases were excluded. The only cases that were accepted were free from vertigo, tinnitus, headache, cholesteatoma, facial paralysis, and free from disease of the promontory or attic wall.

In this series all recovered but one, and it was found at the second operation that he had cholesteatoma. This must have been overlooked at my examination or at operation, or it was so small at the time that it was not seen. Ever since that time I have been using the same reasoning in deciding the kind of operative procedure in given cases for children (up to 12 years of age).

Certain operations for chronic suppuration of the middle ear impress the surgeon by their results, and I am not so sure but what in carefully selected cases, such as I have spoken of before in children, some adults might be successfully treated by surgery. I believe that indications for and the type of operation for chronic suppuration may be selected as clearly in the near future as we today differentiate in findings and methods between the acute and the radical operations.

When we differentiate between the various operative measures for the cure of chronic suppuration of the middle ear, some few lesions stand out alone and cannot be cured by any other procedure than the radical mastoid operation. These include cholesteatoma, facial paralysis, caries of the promontory, caries of the attic wall inside or outside, vertigo or any cerebral or cerebellar symptoms. The operation must remove the lesion; nothing short of that will suffice. This, I believe, will become the accepted condition governing operative procedures for chronic suppuration of the middle ear. Furthermore, I expect to see the gradual disappearance of chronic suppuration of the middle ear by the improvements that have been brought about in the preliminary care of acute otitis and mastoiditis. I am not going to enter into a discussion of the indications for the radical mastoid operation, because we have specific indications established by most of the textbooks of otology. The only cases warranting disagreement are those in which a specific indication does not exist. I refer to the cases that have a chronic discharge from the ear and do not have other symptoms or demonstrable lesions. Some of these patients are cured by treatment, but they do not remain cured. Probably 5 per cent of the cases cured without operation remain well. So, after trying for a short time to bring about a successful issue, I am ready to recommend the radical mastoid operation, or one of the surgical procedures for the cure of chronic suppuration. For these patients (who comprise the great majority) have been very satisfactory in every way. Among this class of patients I have never had one regret the operation. I am more enthusiastic about the radical mastoid operation than ever before.

I do not believe I have had more than four or six patients who were not cured. However, a patient who has had the radical mastoid operation needs attention three or four times a year as long as he lives. Without such attention trouble will follow, and if neglected too long reoperation may be necessary.

By the use of the graft described by me some ten years ago, the whole of the after treatment is very much simplified; the hearing is better and the patients make a much quicker recovery. It may be possible that the resistance to debris is not so good. However, it is a question. I have lost four patients of approximately six hundred operated upon—one from brain abscess and three from purulent meningitis.

210 Post Street.

DISCUSSION

JOHN LARUE ROBINSON, M. D. (Reno, Nevada)—Doctor Welty was made an honorary member of this Society in 1904; I think the first honorary member of the Society. He has contributed much to our enjoyment and enlightenment during the past twenty years, and we always appreciate his contributions.

The doctor's paper just read, I think, expresses the advanced thought of today upon the subject. The one point, however, I would like to touch upon is the method of dressing. For several years I have used a perforated rubber drainage tube in lieu of gauze, because: It seems to me more humane; my cases have dried in much shorter time; we have less scarring.

Recently, I had a paralysis of the right rectus following an acute mastoid operation, which gave me considerable concern. I sought, in vain, help from every angle possible for an explantion. In relating the circumstance to Doctor Welty, he immediately suggested that it might be "Gradinego's Syndrome," which was reported in Laryngoscopy, 1924. I now believe that my patient belonged in that classification.

Welty speaks positively concerning the proper procedure in chronic suppuration of the middle ear, and I am inclined to believe that most of us come to the same conclusion after years of experience.

D. H. TROWBRIDGE, M. D. (Fresno)—I wish to congratulate Doctor Welty on a very complete and interesting paper in which I agree almost entirely. He has expressed my ideas almost exactly as regards the treatment of mastoid infections, and I agree heartily with him on his line of treatment. Particularly, I agree with him in not neglecting to operate upon an ear that has been discharging for four or five weeks, which, having been properly treated, refuses to heal at the end of that time. I think it was Dench who claimed that any ear that discharged for two weeks had involvement of the mastoid. I would not say that every ear in which the discharge does not cease in four or five weeks would not eventually get well, but I do feel that any patient with an ear that has discharged for four or five weeks is much safer with a simple mastoid operation than to have it left in a discharging condition. Not only safer as a matter of life and death, but much more likely to have good hearing than if allowed to discharge for several weeks longer, even if at the end of that period the ear has become perfectly dry, as it will also be more or less permanently deaf.

There is very little danger from a simple mastoid operation if done by a skillful surgeon. On the other hand there is certainly much danger in waiting indefinitely since almost every year aurists of large experience observe several cases of meningitis which rapidly succumb. These fatalities could be avoided, as Welty points out, by early operation.

In my experience of about eight hundred mastoid operations, I cannot recall any bad results from any simple mastoid operation. Like Welty, I can say I have never lost a patient as a result of simple mastoid operation, but I have lost patients where the operation was complicated by meningitis or brain abscess that had already begun before I operated, and I have come to feel that one is hardly justified in operating upon mastoids where meningitis is already established, even although it is very slight. The only reason I would operate in a case of this kind is that occasionally in children where meningitis apparently exists, the symptoms have cleared up following operation. To illustrate, during the past winter a woman suffering from considerable pain was referred by her family physician to an aurist who did not consider the fact that her ear had been discharging for six weeks, or that she was suffering severe pain over that side of her head, sufficient to indicate mastoid involvement, since there was no tenderness on pressure over the mastoid, and even in the face of the severe pain and chronic discharge he neglected to operate. About five weeks later the patient was sent to me, but at the time I saw her the woman had a well-marked meningitis and soon succumbed to the disease. I am satisfied that an early simple mastoid operation would certainly have saved her life.

I wish to accentuate Welty's statement concerning thoroughness of operation. Every mastoid cell, whether diseased or healthy, should be removed if possible. Theoretically a perfect mastoid operation is one in which all of the cells are destroyed and the contents of the mastoid bone removed down to the inner table. If this is accomplished, the condition clears up earlier, healing is more rapid and there are fewer recurrences.

A case in point is one in which I did a radical operation this past winter, on a patient who had had a simple operation by an aurist about a year previously. Upon opening the mastoid cavity I discovered that only about one-half of the cells had been removed at the previous operation. This patient had suffered intense pain for several months as well as complete loss of hearing because he had had an incomplete simple operation, whereas a complete removal of all of the mastoid cells would have saved his hearing entirely and effected a cure at the time.

For the last four or five years I have ceased to use the gauze pack. After the first dressing, which is usually on the third day, I insert into the wound a specially selected, thin-walled, soft rubber drain of pure gum. This has a large caliber almost one-quarter of an inch in diameter and is inserted well upon to the top of the wound and is made shorter from time to time as the wound heals. In some cases I have been able to remove the drain within two weeks, others require a longer time. I am satisfied that this method of dressing is practically painless and I am equally sure it shortens the period of healing very markedly.

In conclusion, it is my opinion that if we have more simple mastoid operations, in a few years we will have very few radical mastoid operations to do.

J. W. GREEN, M. D. (Vallejo)—Doctor Welty has covered the ground of mastoid surgery in a more able manner than I could present it, but, I believe, he has omitted a most important detail when he fails to mention x-ray studies of his operative mastoids. In my own practice this is a routine part of examination in all cases where it is possible to obtain good pictures. I know that it is not absolutely necessary in making a diagnosis of mastoiditis and neither is it absolutely necessary to have this information in all cases to help determine when to operate; but I have seen two cases in which there was no discharge from the middle ear at any time and no mastoid tenderness or swelling which would help one to arrive at a diagnosis. One of these had been diagnosed typhoid fever and the other incipient tuberculosis. The x-ray is just as important as the laboratory findings in these cases. So much for its help in the unusual cases.

Concerning the ordinary case: A good x-ray tells you the comparative size of the mastoid cells, whether or not there is a marked process and great breaking down of the cell walls, whether there is anomalous placing of mastoid cells (such as extension toward the occiput). A study of both the normal side and that which is diseased will tell you (because in health, both sides develop exactly alike unless there has been previous inflammation) whether there is sinus thrombosis, peri-sinus abscess, subdural abscess and in many cases brain abscess. One is, occasionally surprised to note the enormous size of the mastoid in young children. All this information is of immense value prior to the operation.

It is a fact that early operation will prevent the serious complications and a good surgeon will not injure an ear, even if he should operate in a case which would have recovered without operation, but I have found it wise to operate only and when my best judgment advised me to do so. Every surgeon of experience has this additional sense of intuition. Procrastination has no place in mastoid surgery.

Discharge from an acute otitis media, which does not cease within two weeks after free paracentesis, gives me great concern, as there is one of two conditions present in these cases, mastoiditis or granulations within the middle ear cavity, or both. In all these cases a simple mastoid operation is indicated.

Complete removal of all mastoid cells invariably results in a cure, and I have used a different method of closing the wound and dressing than the one recommended by Welty for the past five years. I close the wound with clips or silk worm and place a cigarette drain of small size directly into and by the shortest route to the mastoid antrum. The wound is allowed to fill with blood prior to suturing. The drain is removed on the third day and many of these wounds heal in ten days or two weeks. This method has been termed the "blood clot" operation. This operation has been successful many times, even in the presence of a demonstrated "hemolytic streptococcus infection."

I am not so enthusiastic concerning the radical mastoid operation. Many chronic otitis cases may be cured by the simple mastoid technique. Perseverance with local treatment will, many times, cure a long established chronic otitis media.

In closing my discussion, to return to the matter of the x-ray, the picture is valuable only as the experience of the interpreter is based upon correlation of the findings at the operating table and the reading of the actual anatomy shown.

THE CALIFORNIA STATUTE AUTHORIZING THE COURT'S EXPERT: ITS HISTORY AND FUNCTION

By ANDREW STEWART LOBINGIER, M. D., *Los Angeles*

INTRODUCTORY NOTE

Doctor Andrew Stewart Lobingier, serving as chairman of the Medico-Legal Committee of the California Medical Association and the Los Angeles County Medical Association, has led the forces of medicine for sixteen years, in efforts to bring about improvement in our laws governing medical expert evidence.

California now has a new law that gives promise of better things. Doctor Lobingier and Mr. Oscar Mueller, representing the Bar Association, who worked with the medical committee, are jubilant over the passage of the new law.

In transmitting the story of the long fight and a copy of the new law, published below, Doctor Lobingier writes:

"We are the first state in the Union to have achieved this legislation, and I think you will pardon me if I seem a bit enthusiastic over it.

"We are so proud of our victory that Mr. Mueller has proposed that we make an effort to interest the bar and medical associations of a number of Eastern states in the passing of similar legislation.

"I have made the report you requested as succinct as was consistent with the record, and would appreciate a prominent insertion in California and Western Medicine, with editorial comment from yourself, which I feel certain will be commendatory."

While not perfect, this law is the best that could be gotten, even with the active participation of the League for the Conservation of Public Health. It is a step in the right direction, and if courts, attorneys, and physicians will co-operate in its enforcement, disheartening and reprehensible scenes, which have too frequently characterized the administration of justice, will become less frequent.— EDITOR.

SIXTEEN years ago, on motion of the writer, the Los Angeles County Medical Association voted to request the council of the association to appoint a committee to confer with the committee on New Legislation of the Los Angeles Bar Association and act jointly with it in proposing an Act which should regulate the giving of expert evidence.

It was believed by this joint committee that a bill could be framed which would, to a great extent, correct the evils which have rendered the giving of expert testimony in our courts humiliating and worthless.

As chairman of the Medical Committee, the writer was invited to deliver an address on Medical Expert Testimony at a dinner given by the Bar Association to the Justices of the Supreme Court of California on the evening of October 15, 1909. The address was published in the Southern California Practitioner and in the California State Medical Journal.

The argument set forth that the expert witness, as usually called by plaintiff or defendant, became a biased advocate for the side which employed him. That our system of taking expert evidence was archaic, expensive, and obstructive of the ends of justice.

In certain foreign countries the expert witness was selected by the court and thereby became an officer of the court, and was chosen from the most competent and accomplished representatives of a given profession. The testimony of such a witness, answerable to neither side, but only to the high court which called him, was characterized by sincerity, dignity and fairness, free from bias or prejudice and, as far as could be, was a dispassionate statement of scientific fact.

Repeated efforts had been made in the various commonwealths of the republic to have enacted statutes which would in some such manner clothe the expert witness with authority and freedom which would facilitate the giving of such scientific testimony without prejudice to either side, a candid statement of scientific truth without bias. All such efforts had, and have until this time, proved futile. Certain members of the Bar, certain corporations which had a singularly obtuse slant on the merits of this legislation and, strange to say, certain presumably scientific members of the learned professions interested, opposed the enactment of any such statute. The result has been a long, stubbornly contested effort for more than twenty years in America, with final defeat in every instance except our own.

The first bill drafted by our joint committee and presented for passage in 1911 had reference only to the giving of medical expert testimony.

It was rejected by the Legislature because it was said to be class legislation and should have regulated the giving of all expert testimony of whatever kind.

A new bill was then drafted governing the giving of expert testimony of every profession or business and presented to the Legislature in 1913. It passed the Senate and failed in the House, owing to the vast number of bills at that time before the Lower House. The same bill was presented in 1915, passed both Houses, and was vetoed by the Governor. As this same executive was continued in office for another term, and as he was known to be unfriendly to such an Act, we concluded not to present the bill again as long as he was in office. The war then intervened and our interests and energies were elsewhere engaged. In 1921 the same bill was again presented, passed both Houses, and was again vetoed, but by another executive, who admitted "he had no personal objection to the bill, but